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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/526,259

03/01/2005

Werner Arts

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CENTRAL COAST PATENT AGENCY, INC
3 HANGAR WAY SUITE D
WATSONVILLE, CA 95076

EXAMINER

WALLENHORST, MAUREEN

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

11/03/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/526,259	Applicant(s) ARTS ET AL.	
	Examiner Maureen M. Wallenhorst	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 2 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☒ Claim(s) 1-2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 28, 2008 has been entered.

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: The title of the invention in the declaration is not the same as the title of the invention given on the first page of the specification. In addition, the declaration fails to claim priority to PCT/EP03/09702 under 35 USC 120.

4. Claims 1-2 are objected to because of the following informalities: In claim 1, a step should be inserted in the method of introducing a sample of the aqueous solution into the vertically oriented reaction chamber between steps a) and b) in order to provide a more complete claim. Appropriate correction is required.

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-2 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant

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art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 has been amended to recite that the combustion occurs at a temperature at or above 1200°C. This represents new matter since there is no indication in the specification as originally filed that the combustion occurs **above** 1200°C. The specification only states on page 4, lines 3-5 that the "combustion temperature is increased to values above 1150°C and specifically to a value of approximately 1200°C". There is no indication in the specification, as originally filed, that the combustion temperature can be higher than or **above** 1200°C.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 1,439,469 in view of Arts et al (EP 1,055,927).

GB 1,439,469 teaches of a method for the pyrolytic analysis of aqueous liquids in order to determine the total oxygen demand (TOD) of the liquids. The method comprises the steps of injecting into a combustion furnace a sample of an aqueous liquid, such as sewage waste water, together with a carrier gas, and heating the sample in the furnace to a temperature from 1000 to 1200⁰C in the absence of a catalyst. Total oxygen demand is measured by determining the decrease in free oxygen content of the carrier gas during combustion of the sample, and comparing the concentration of free oxygen in the carrier gas both before and after the combustion process. In contrast to conventional furnaces, the combustion furnace taught by the GB patent works in the absence of a catalyst. The high temperature range at which the sample is combusted in the furnace (i.e. 1000-1200⁰C) ensures that all of the hydrocarbon compounds are completely burnt to form carbon dioxide. See lines 84-90 on page 1, lines 1-26 and 117-122 on page 2, and lines 20-37 on page 3 of GB 1,439,469. The GB patent fails to teach that the combustion chamber is vertically oriented, and that salts in the aqueous sample are removed at the lower end of the combustion chamber.

Arts et al (EP 1,055,927) teach of a method and device for the decomposition of an aqueous liquid sample in order to determine the total content of organic carbon (TOC) therein. The method comprises the steps of passing a sample of aqueous waste water into a combustion chamber that is vertically oriented, and heating the sample to a temperature between 1000 and

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1200⁰C without the presence of a catalyst. Arts et al also teach that any salt components in the sample are removed at the lower end of the vertically oriented combustion chamber. See the abstract, English language translation and Figure 1 of Arts et al.

Based upon a combination of GB 1,439,469 and Arts et al, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to vertically orient the combustion chamber taught by GB 1,439,469 since Arts et al teach that such a configuration is normally used for the combustion of an aqueous waste water sample, and facilitates the passage of the products of combustion to a detector. It also would have been obvious to one of ordinary skill in the art to remove any salts in the aqueous sample combusted using the method and apparatus taught by GB 1,439,469 at the lower end of the combustion chamber since Arts et al teach that it is advantageous to remove contaminating salts in a combusted aqueous waste water sample so as to achieve accurate detection results.

11. Applicant's arguments filed October 28, 2008 have been fully considered but they are not persuasive.

The objection to the declaration made in the last Office action mailed on June 30, 2008 has been maintained since a new declaration in compliance with 37 CFR 1.67(a) was not received with the response dated October 28, 2008. The grounds of rejection of the claims under 35 USC 112, second paragraph made in the last Office action have been withdrawn, as necessitated by Applicants' amendments to the claims.

Applicants argue the rejection of the claims under 35 USC 103 as being obvious over GB 1,439,469 in view of Arts et al (EP 1,055,927) by stating that GB 1,439,469 only teaches of using a temperature for decomposing that is maintained within a region between 1000-1200⁰C,

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and specifically teaches away from decomposition at temperatures at or above 1200⁰C as now recited in the claims. In response to this argument, it is noted that instant claim 1 has been amended to recited a combustion temperature "at or above 1200⁰C", and GB 1,439,469 clearly teaches combustion **at** 1200⁰C. See page 3, lines 24-26 of GB 1,439,469 where it recites "the hydrocarbon compounds present in the sewage burn immediately at 1000 to 1200⁰C to form carbon dioxide", and claim 1 of GB 1,439,469 where it states "...where the sample is burnt in the absence of a catalyst at temperatures of from 1000 to 1200⁰C...". The limitation of "above 1200⁰C" in amended claim 1 represents new matter, as set forth above.

Applicants argue that decomposition at the temperatures recited in instant claim 1 are advantageous for determining oxygen demand since such temperatures provide extremely reliable results. In response to this argument, one of skill in the art would expect the same reliable results using the method taught by GB 1,439,469 since the method disclosed in the GB patent utilizes combustion at 1200⁰C, which is one of the same temperatures as recited in instant claim 1.

Applicants also argue that one would not look to Arts' process for TOC to provide advantages to the TOD measurement process taught by GB 1,439,469, and Arts cannot be combined with the GB patent since the GB patent utilizes a horizontal combustion chamber where salt is periodically cleaned from the chamber. In response to these arguments, it is noted that the primary reference to GB 1,439,469 teaches a process for determining the total carbon content (TOC) of a wastewater sample, and "in addition to the total carbon content (TOC), total oxygen demand (TOD) is an important parameter" also measured in the process. See lines 11-26 on page 2 of GB 1,439,469. Therefore, the references to the GB patent and Arts are properly

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combinable since both teach of processes for measuring TOC in a wastewater sample. It would have been obvious to one of ordinary skill in the art to combine the teaching of Arts with the teaching of the GB patent by substituting the vertical combustion chamber of Arts for the horizontal combustion chamber of GB 1,439,469 in order to gain the advantages of a vertical combustion chamber, namely that being the use of gravity to transport fluids and gases through the chamber to facilitate the removal of salts that form during the TOC combustion analysis in GB 1,439,469, thus avoiding having to clean the salts from the combustion chamber.

Applicants argue that the Examiner has used hindsight reasoning in making the rejection under 35 USC 103. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Applicants argue that there are many obstacles to combining GB 1,439,469 and Arts including the fact that GB 1,439,469 teaches of a horizontal combustion chamber, both pieces of prior art fail to teach the high combustion temperatures as recited in the instant claims, and Arts not teaching a TOD measurement. Applicants argue that there would be many difficult modifications which would have to be made to the art in order to combine GB 1,439,469 and Arts so as to result in the instant invention. In response to these arguments, it is noted that since both the GB patent and Arts teach of TOC measurements, and Arts teach of the advantages of

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using a vertically-oriented furnace in a TOC measurement so as to facilitate the passage of combustion products to a detector and the collection of resulting salts at a lower end of the furnace, it would have been obvious to one of ordinary skill in the art to substitute the known vertical combustion chamber used in the TOC analysis of Arts for the known horizontal chamber used in the TOC analysis taught by the GB patent so as to gain the advantages as disclosed by Arts. The substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. It is further noted that both the GB patent and Arts teach of combustion at high temperatures since the GB patent teaches of combustion at temperatures between 1000 and 1200⁰C, and Arts teaches of combustion at temperatures above 1000⁰C, and preferably above 1200⁰C. It is further noted that even though Arts does not teach TOD measurements, the combination of the GB patent and Arts is proper since the primary reference to GB 1,439,469 teaches of a TOD measurement process at a temperature at 1200⁰C, as recited in the instant claims, in addition to a TOC measurement of a wastewater sample, and Arts teaches of a TOC measurement process and the advantages of using a vertically oriented combustion chamber in a TOC measurement over a horizontally oriented combustion chamber. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the instant invention to vertically orient the combustion chamber taught by GB 1,439,469 used for both TOD and TOC analysis since Arts et al teach that such a configuration is normally used for the combustion of an aqueous waste water sample in a TOC measurement process, and facilitates the passage of the products of combustion to a detector.

For the above reasons, Applicants' arguments are not found persuasive.

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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen M. Wallenhorst whose telephone number is 571-272-1266. The examiner can normally be reached on Monday-Thursday from 6:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden, can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Maureen M. Wallenhorst
Primary Examiner
Art Unit 1797

mmw

October 31, 2008

/Maureen M. Wallenhorst/

Primary Examiner, Art Unit 1797